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mences early in April, and may possibly have caused the rise observed by Mr. Laird at Idda on the 22nd of March.

The Kworra, coming from the westward, and extending over many degrees of longitude, is differently acted on in various parts of its course.

From Yauri downwards the rains are brought by south-east and north-east winds, and to a more limited extent in September from the south-west.* In its middle part the rains have less influence, while towards its source the chief supply is brought by south-west winds in September, October, and November. The floods which these occasion, flowing through level countries at a slow rate, do not reach Timbuku before January, when they first retard the fall, and occasion a small rise, varying in amount at different points with the width of the river-bed.

At the Confluence there is a difference in the colour of the two waters; that of the Binue is of a deep transparent blue, called in Hausa "bakyin ruwa," or black water, while the Kworra, from its turbid muddy colour, is named "farin ruwa," or white water; this distinction is lost when both are in flood, and come down loaded with sediment.

V.

LIST OF NATIVE VOCABULARIES OF SMALL OR BEFORE LITTLE KNOWN TRIBES.

(Collected by Dr. W. B. Baikie, R.N.)

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|--------------------------------|----------------------|
| 1. Yeskwa. | 10. Basa. |
| 2. Yagba. | 11. Kamuku. |
| 3. Ayo (near Daroro). | 12. Gadde. |
| 4. Zozantsi. | 13. Kadara. |
| 5. Hausa words from Zariya. | 14. Bonu. |
| 6. Towani (western districts). | 15. Gulengwe or Ugu. |
| 7. Ninjom (Towani, N.E.). | 16. Ungwoi. |
| 8. Kattab. | 17. Zhaba. |
| 9. Wura. | |

V. *A Visit to the North-East Province of Madagascar.* By the Rev. H. MAUNDRELL. Communicated by the Right Rev. V. W. RYAN, D.D., Bishop of Mauritius.

Read, January 14, 1867.

THE north-east province of Madagascar is called by Europeans *Vohimare*, but by the natives of the country *Vohimarina* (from *Vohitra*, village, and *marina*, level). This province is well watered by numerous streams, which, rising among the mountains of the interior, flow eastward into the Indian Ocean. The

* Between Bida and Zariya the rainy season ends on the 3rd of October.

province on the whole is mountainous, though possessing along the courses of its rivers large, rich, fertile valleys, which abound in uncultivated vegetation.

These valleys present every advantage to colonisation. They might, with a little enterprise and outlay, be easily irrigated by the streams which flow through their midst, and would thus become capable of producing almost any quantity of rice, sugar-cane, and all other tropical productions. In the woods, especially those in the country around the Bay of Diego Suarez, there is much hard timber that might be used either for shipping or building purposes, while from the mountains might be obtained abundance of *stone*, and, according to the statements of some, *iron*.* I have heard and read also that coal is found on the north-west coast, at a place called Passandava, near to the French island of Nossibé.

Quartz is found in great quantities. This province is remarkable for the facilities it offers to commerce, from the magnificent harbours it possesses; as if Providence had decreed that it should yet become a seat of enterprise, commerce, and civilisation.

The chief of these harbours on the east coast are the Bay of Vohimare, Port Leven, Port Luquez, and the Bay of Diego Suarez, or British Sound. Sir Robert Farquhar endeavoured to establish a colony at Port Luquez, and sent ships there for that purpose; but the settlers were murdered by the Sakalavas, who were then far more savage and less civilised than they are now. The bays of Vohimare and Diego Suarez deserve our chief notice, both on account of their natural advantages, and from the adjoining country to each being uninhabited, while the intervening country is not, except by wild bullocks and crocodiles, and a very few men, who spend their time in hunting the wild bullocks, and in taking the calves either to Amboanio or Antomboka, where they are tamed and placed with the other herds.

The Bay of Vohimare is a fine sheet of water, running inland in a westerly direction, and shut off from the Indian Ocean by a coral-reef which runs almost north and south. The entrance to it is at its south-east corner. This entrance is narrow, but of sufficient size and depth of water for any of our largest ships. If the wind is blowing from the south-east or east, there is no danger in entering; but with a strong south or south-west wind, so narrow is the passage, that in a few moments you may be on the reef.†

* I have seen inferior iron, which shows that perhaps the good may yet be found.

† Of course, this applies only to sailing-vessels.

As you enter, the town of Ibarana appears on the left, while on the west and north-west the bay is enclosed by mountains, and round its border, between the water and the above-mentioned mountains, is a belt of trees and shrubs. Thus the water of the bay, this belt of wood, and the mountains beyond, make up a beautifully picturesque view.

It is the policy of the Hovas to build their citadel some miles inland from the coast, that they may not be bombarded by French and English men-of-war. This explains why so few Hovas reside at Ibarana. They look upon this small port as a trading-place simply, and are never there in large numbers, except when ships are in the harbour, when they come and remain there till the ships are gone away.

Ibarana scarcely contains more than a hundred houses, half of which are sometimes empty. It generally contains from 100 to 200 inhabitants. When a ship is there for bullocks, it presents a lively aspect. The Hovas and Sakalavas flock in from Amboanio and the surrounding country, so that Ibarana at that time may have a population even exceeding 1000. The following day, after the departure of the ships, Ibarana assumes its wonted quiet.

At the town of Amboanio, which is about one mile from the sea, eight miles south of Ibarana, and situated on a slight eminence commanding an extensive valley, watered by two streams, is the citadel. This is about an acre of land, in the form of a square, enclosed by a palisade of wood. There are a few cannon mounted at the corners of this citadel, and at its principal entrances. Within are the houses of the Governor, the officers, and soldiers, and the powder-magazine. To a European it is a place of insignificance, scarcely deserving of the name of citadel or fort or battery, though it is not too much to say that it is by means of such places built, and garrisoned by a mere handful of disciplined soldiers, in different parts of the country, the Hovas keep in subjection and fear the conquered tribes of Madagascar.

Besides this citadel or *rova* (fence, palisade), as the natives call it, the town of Amboanio comprises two other divisions: viz., the *tanána ny borizany*,* or town of the civilians, and the town of the Sakalavas (the natives call any collection of houses a town, so that there are many towns within a town). Hence, the citadel, the district of the civilians, and the district of the Sakalavas make up the town of Amboanio. This town contains from 500 to 1000 inhabitants. The population is very fluctuating, as very many of the people who have houses at Amboanio

* *Borizany* is the native corruption of "*Bourgeois*."

have other houses in the country at their rice-grounds, and they are often away from Amboanio for months. Again, the Sakalavas, from their inveterate hatred of the Hovas and of their galling rule, prefer living in the country, and only come up to Amboanio at the annual feast, at the Sakalava feast of *Manangana Savatra* (the Feast of Circumcision), at similar great occasions, or to sell their rice. These houses in the country are severally called by the natives their *tanána*; but a general name for them all, and the country where they are built, is *Ambanivolo* (*Ambany*, "under," and *volo*, "bamboo"), because many bamboos grow near them. Another general name for all these small villages, and the whole country towards the interior, is *Andoharano*, *i. e.*, "The country about the sources of the streams," from *any*, "there," *loha*, "head," and *rano*, "water."

It is at *Ambanivolo*, or *Andoharano*, that the natives grow the principal part of their rice, sugar-cane, manioc, sweet potatoes, &c. All the houses of Amboanio, like nearly all in Madagascar, are made of wood.

The houses of the Hova officers are peculiar, inasmuch as the two gable rafters, at each end of the house, are made to cross and extend higher than the top of the roof. Those in the house of the Governor extend highest, and those in the houses of his officers, according to their rank, are either high or low. No one must make his gable rafters as high as those of his superiors.

The Betsimsarakas build their houses, generally speaking, a little above the ground, a practice which they probably learned from Europeans, who are compelled when living in Madagascar, especially when living on the coast, to protect themselves from malaria and damp.

They also keep their houses very clean and neat, much more so than the Hovas and Sakalavas. This, too, may be attributed to their intercourse with Europeans. The beautifully fair countenances and the partly European features of some of them, and the many foreign tombs at Vohimare and elsewhere, lead to the supposition that many Europeans (some say old pirates) settled on the east coast of Madagascar, married native women, and had children.

The country immediately around the town of Amboanio is flat, except that between Amboanio and the sea, which is hilly, or, what we should call in England, downs. These downs are very extensive all along the coast at Vohimare, and afford splendid feed for cattle. The bullocks of Vohimare are the best in Madagascar, and fetch a higher price at Mauritius than any others.

The beautiful valley between Amboanio and the mountains of

the interior, and stretching for several miles north and south, is watered by the two streams Manambery and Fanambana; the former about three miles to the north, and the latter about three miles to the south, of Amboanio. The soil is of a black rich nature in many parts.

At present it is covered chiefly with long grass; but, if irrigated with the waters of the above-mentioned rivers, it might be made to grow in abundance all the tropical productions necessary to make Ibarana, the port of Vohimare, a place of commerce; and then industry and civilisation would spread throughout the north of Madagascar.

The interior from Amboanio, as in all the north of Madagascar, is mountainous; though, running between the mountains, there are large, rich, fertile, and well-watered, but uncultivated, valleys.

Many of the mountains are wooded. The rafia palm is seen growing along the courses of the streams that wind their way among the mountains, while the travellers' tree is found right at their summit. I was ascending one of these mountains once, with two natives; the water we brought with us was finished long before we got to the top. I began to be very thirsty; the sun was very hot. My tongue was parched, and I could not partake of some food I had brought with me without water. To my great astonishment and delight, at the very top of this mountain, growing on the rocks, were a few travellers' trees; we pierced them, and out flowed the water. Such is a simple instance of the merciful provision of Providence for his people.

My object in ascending the mountain was to ascertain the nature of the country beyond.

The rafia palm also is of great value in Madagascar; the natives make the rafters and sides of their houses with its stems, and they thatch them with its leaves. Besides their houses, the Sakalavas make most of their *lambas* from the leaves of the rafia palm.

The character of the country between Vohimare and the Bay of Diego Suarez is pretty much the same as that of the country about Amboanio. It is mountainous towards the interior, and in many places right down to the sea-coast. There are also numerous and extensive valleys, well watered by numerous streams. Very little indeed, however, is known of this part of the island. As I passed through it on my way to Antomboka, I was struck with one peculiarity: all the plains and valleys are dotted over with palm-trees. The natives call this palm "*satrana*." It grows nearly to the height of the cocoa-nut tree, but often bigger in the stem, with the leaves very much like the leaves of the vakois. I should have thought it was

the vakois, but the natives knowing the vakois and calling this by the word "*satrana*," makes me think that this may be a palm peculiar to Madagascar. The following are the names of the places I stopped at during my journey.

Monday, Sept. 4th, 1865.—Started from Amboanio about 12 o'clock, crossed the river of Manambery, passed to the west of Ibarana and the Bay of Vohimare, and came, about 5 P.M., to Maintialaka, a very small village of not more than six houses. It is the last inhabited place I saw till I came to the suburbs of Antomboka.

Tuesday, 5th.—Left Maintialaka at 6 o'clock A.M., crossed the river of Maintialaka, which runs close by the village of the same name. No canoe: crossed, as also all the rivers afterwards, in my palanquin, borne by my bearers. At 11 A.M. arrived at the river of Manambato. This river is not wide nor deep. Breakfasted under a few sticks stuck in the ground and covered with rough grass. Started again after breakfast, and came in the evening to Sahampano. Water not good. My bearers made me a temporary hut for the night. There were lots of palm-trees in this place.

Wednesday, 6th.—Had very little sleep last night. The mosquitoes were both big and numerous: they greatly tormented me. I was told that the mosquitoes in the rainy season even kill the calves. I was at Sahampano at the most favourable time, and yet they kept me from getting sleep. After leaving Sahampano I travelled through a country thinly covered with the palm-tree. This palm is very much like the vakois. Breakfasted at Bemongo, in a beautifully shady spot. During the afternoon I came into a valley between two ranges of hills, and saw some wild bullocks; they either saw or smelled us, and made off towards the interior. At 5 P.M. crossed the river of Manakolana. The water was up to the chins of my bearers. Rested for the night at Andringanely. Found some small huts, which persons who preceded us had made. Good water. The palm-tree continued to become finer as I went north. At this place they gave a very pleasing aspect to the scenery.

Thursday, 7th.—Slept well the night previous; no mosquitoes troubled me. Started on our journey at sunrise. Soon after leaving Andringanely we came to the top of some rising ground, where an immense valley, full of the palm-tree, stretched far away towards the interior of the country and bound it in on the north by a high range of mountains running down to the sea-coast.

Port Luquez, which runs considerably inland, compelled us to turn our course to the north-west. We breakfasted at Andranosalampana. The water was fair. I found the sun very hot,

passing through this valley; my men got very tired. At evening I came to a river, and found that a part of my men had crossed it before I and my bearers came up; in the meanwhile the tide had come in, and we could not cross. My bearers cooked my rice, made me a hut, set fire to the shrubs and grass to drive away the mosquitos, and did everything in their power to make me comfortable. At midnight the tide gave out, and we crossed, without trouble, both this river and another; and at 5 o'clock the next morning I came up to the first party at Bedrakaka.

Friday, 8th.—After breakfasting at Bedrakaka we went north-east. Thus, by going north-west the day before and north-east on this day, we at length rounded the inlet of the sea called Port Luquez. Had a splendid view of this immense sheet of water as I travelled along up the mountain that I had seen far off in the north on Thursday morning. In the evening arrived at a place called Bemanevikia; it is close by the sea at the end of the range of mountains above mentioned. Good water and a cool sea-breeze made me enjoy this place.

Saturday, 9th.—Left the previous night's resting-place at 5:30 A.M., marched through a parched country and across an inlet of the sea, when the tide was out, till 12 o'clock. Crossed Rodo, the widest river all the way up. No canoe; much difficulty in passing. If my men had not been tall, I should not have got across dry. My bed was soaked, and my medicine-chest all but lost. The lad who was carrying it was being taken down the stream, when another person seized him and helped him through. Soon afterwards we came to the village of Rodo, which consists of four houses. Only two women were there. My rice had run out, and I sent men on forward to procure some.

Sunday, 10th.—Stopped at Rodo. The men who went for rice returned just soon enough to enable all to have a good supper on this day.

Monday, 11th.—Rose very early and left Rodo before 4 A.M., as we had a long journey before us. After travelling seven hours over hilly and irregular country, we arrived at a small village of about twenty houses, called Antananarivokely, or Little Antananarivo. It is situated in a plain a few hours' walk from Antomboka. From this place I sent word to the Governor that I would visit him on the morrow, according to the habit of the Malagasy people; for unless you acquaint the governor of a town of your visit, he justly looks upon your visit as an intrusion and insult.

Tuesday, 12th.—On this day I left Antananarivokely, and, after travelling across a plain, ascended the mountain on which Antomboka is built and entered the town.

Antomboka, properly speaking, is the name of a very small village of ten or twelve houses, situated close to the Bay of Diego Suarez; but the name is given by some natives and Europeans to the town or citadel of the Hovas, called sometimes by the Hovas Vohimarina, and by the Sakalavas Antsingy. It is a fortress of the Hovas, built on the top of a mountain, which on all sides is defended by projecting and precipitous rocks from invasion. There are only three ways by which the top is reached, all of them exceedingly difficult. One is on the south, one on the west, and one on the east. I first ascended by that on the south side of the mountain. Just before coming to the top the only means of getting up is a ladder of from 15 to 20 feet. Having mounted that, a plateau stretches itself out before you on which is built a Sakalava town, *i. e.* the Sakalava portion of Antomboka. Higher up is the town of the civilians, and higher still is the residence of the governor, officers, and soldiers.

This town is so naturally and almost invulnerably defended that it forms the key to the whole of the north of Madagascar. The Hovas quite look upon it in this light; so that while scarcely a hundred soldiers are stationed at Amboanio, quite a thousand are kept at Antomboka.

There are two small villages, near which are the ports for Antomboka, as Ibarana is the port for Amboanio. One is called Ambodivahibe, and situated at a small bay a few miles south of the Bay of Diego Suarez; it contains nearly a hundred inhabitants, and is the port for Arab dhows and about 8 miles from Antomboka. The other is the very small village of ten or twelve houses at the Bay of Diego Suarez.

This bay is beginning to be known by many as one of the finest in the world. It is completely protected from the waters of the Indian Ocean, and comprises five large harbours.

The scenery around is extremely beautiful; the soil is rich and the country healthy. To sum up all that is said in the preceding pages, the north of Madagascar is healthy, well watered, rich, and fertile, possessed of many materials on its soil for shipping and building purposes, and having great advantages for commerce in its fine and spacious harbours. This fine country, however, is but very thinly inhabited, and, of course, scarcely at all cultivated. The natives are quite satisfied in growing sufficient rice for their daily wants, and sufficient of sugarcane for the manufacture of an intoxicating drink called "*toaka*;" but are not conscious of, and want the enterprise to work, the resources of their beautiful country. I may mention, in conclusion, that the Arabs from Nossibé, the Comoro Islands, and Zanzibar, are the principal traders in the north of Mada-

gascar. They trade chiefly in gum copal and other gums found in Madagascar, which they get from the natives in exchange for cotton-prints and *slaves*. For, notwithstanding the efforts of the British against the slave-trade, several slaves are brought to Vohimare under the pretence of being the sailors and servants of the owners of the Arab dhows, and then sold to the Hova officials. The influence of the Arabs upon the natives is anything but salutary.

One French gentleman, M. Guinet, lives near Amboanio, and is the agent for M. Lebrun, of Mauritius.

VI. — *On the Rivers San Gavan and Ayapata, in the Province of Carabaya, Peru.* By Professor ANTONIO RAIMONDI, Hon. Corresponding Member R.G.S.

Read, February 25, 1867.

THE want of agreement observed in all maps with respect to the rivers of the province of Carabaya, particularly those known in the country under the names of San Gavan and Ayapata, urged me to make an expedition into these deep Andéan valleys, so as to discover the real course of the rivers, from their sources in the Cordillera to their junction with the Inambari, to which nearly all the waters of the province of Carabaya are tributary.

Although the object of this memoir is to make known the course of these two rivers, namely, the San Gavan and Ayapata, which are the least known, I propose, for the better understanding of this portion of Carabaya, to make a few general observations on the province.

The province of Carabaya, so famous for its rich gold-mines, is in the southern part of the republic of Peru, and is in the department of Puno. It is bounded on the north and east by the republic of Bolivia; on the south by the provinces of Huancané, Azangaro, and Lampa, in the department of Puno; and on the west by the department of Cuzco.

A great and elevated chain of mountains, covered with snow, traverses the province from east to west, dividing it into two unequal portions. In the portion to the south of this great barrier there extends an elevated region, the lowest portion of which is more than 13,500 English feet* above the level of the sea. To the north of the same barrier are thrown out many ramifications or secondary chains, in which are found deep *quebradas* or narrow valleys, watered by as many rivers, which, uniting, form the great River Inambari.

* All altitudes are given in English feet.